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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,660	02/09/2004	Xiaohe Chen	200300677-1	1438

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

MAIL DATE	DELIVERY MODE
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09/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/775,660	Applicant(s) CHEN ET AL.	
	Examiner Callie E. Shosho	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/22/07 has been entered.
2. All outstanding rejections of record except for those described below have been overcome in light of applicants' amendment filed 6/22/07.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites that the ink comprises about 0.1 to 5% by weight of water-soluble polyurethane that has water-solubility limit of "at least 0.1%" and also that the polyurethane is "fully dissolved". Given that the water-solubility limit of the

polyurethane is only “at least 0.1%” and the ink comprises about 0.1 to 5% water-soluble polyurethane, the scope of the claim is confusing given that it is not clear how the polyurethane is fully dissolved. That is, if the ink comprises 5% water-soluble polyurethane with water-solubility limit of 0.1%, it is clear how the water-soluble polyurethane is fully dissolved. Clarification is requested.

In order to overcome the above rejection, it is suggested that in claim 1 the phrase “water-solubility limit of the water-soluble polyurethane is at least 0.1% at 25 °C” is amended to recite “water-solubility limit of the water-soluble polyurethane is greater than about 5% at 25 °C”, i.e. insert the limitation of claim 3 into claim 1.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-3, 6-10, and 17-21 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 03/097753.

WO 03/097753¹ discloses ink jet ink comprising 0.5-25%, preferably, 2-10% pigment, water-soluble polyurethane possessing acid number of 5-100, preferably 10-80, 1-15%, preferably 2-10%, C₁-C₈ alkanediol, and 5-20%, preferably 6-25%, co-solvent

¹ It is noted that when utilizing WO 03/097753, the disclosures of the reference are based on Waki et al. (U.S. 2004/0242726) which is an English language equivalent of the reference. Therefore, the column and line numbers cited with respect to WO 03/097753 are found in Waki et al.

such as 1,3-dimethyl-2-imidazolidinone and 2-pyrrolidone. It is disclosed that the ratio of polyurethane to pigment is 5-100/100 and thus, it is calculated, based on the amount of pigment, that the polyurethane is present in amount of 0.1-10%. The ink does not require surfactant. The ink possesses viscosity of at most 20 cP. Further, there is disclosed process for printing an image into paper substrate using ink jet printer. Although there is no explicit disclosure of ink cartridge, it is clear that the printer would necessarily inherently possess ink cartridge to store ink (paragraphs 1, 10, 13, 17-18, 20, 25, 56-57, 66-67, 133, 136, 138, 141, 145, 147, and 161). Given that WO 03/097753 disclose that the polyurethane is water-soluble and further given that the polyurethane possesses acid number as presently claimed, it is clear that the polyurethane would inherently possess water-solubility limit as presently claimed and would inherently be fully dissolved as presently claimed.

In light of the above, it is clear that WO 03/097753 anticipates the present claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 5 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/097753.

The disclosure with respect to WO 03/097753 in paragraph 6 above is incorporated here by reference.

The difference between WO 03/097753 and the present claimed invention is the requirement in the claims of acid number of the polyurethane.

WO 03/097753 discloses that the polyurethane possesses acid number of 5-100, preferably, 10-80, while the present claims require polyurethane possessing acid number of 30-70 or 40-60.

However, as set forth in MPEP 2144.05, in the case where the claimed range “overlap or lie inside ranges disclosed by the prior art”, a *prima facie* case of obviousness exists, *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Further, it would have been within the skill level of one of ordinary skill in the art to recognize that controlling the acid number of the polyurethane controls the properties of the polyurethane and thus, the ink, such as water resistance, storage stability, viscosity, etc.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to utilize polyurethane in WO 03/097753 with acid number, including that presently claimed, in order to produce ink with desired properties, and thereby arrive at the claimed invention.

10. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/097753 in view of Iu et al. (U.S. 6,102,998).

The disclosure with respect to WO 03/097753 in paragraph 6 above is incorporated here by reference.

The difference between WO 03/097753 and the present claimed invention is the requirement in the claims of specific solvent.

Iu et al., which is drawn to ink jet ink, disclose the use of hydantoin solvent identical to that presently claimed in order to produce ink with enhanced image quality, waterfastness, and dry time (col.4, lines 41-65 and col.9, lines 20-24).

In light of the motivation for using hydantoin solvent disclosed by Iu et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such hydantoin solvent in the ink of WO 03/097753 in order to produce ink with enhanced image quality, waterfastness, and dry time, and thereby arrive at the claimed invention.

11. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/097753 in view of Ma et al. (U.S. 5,648,405).

The disclosure with respect to WO 03/097753 in paragraph 6 above is incorporated here by reference.

The difference between WO 03/097753 and the present claimed invention is the requirement in the claims of surface tension of the ink.

Ma et al., which is drawn to ink jet ink, disclose that in order for ink to be suitable for ink jet printing the ink must possess surface tension of 20-70 dyne/cm given that the jet velocity, separation length of droplets, drop size, and stream stability of the ink are effected by surface tension (col.5, lines 39-45).

In light of the motivation for using ink with specific surface tension disclosed by Ma et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use ink with such surface tension, including that presently claimed, in order that the ink is suitable for, and effectively utilized in, ink jet printing, and thereby arrive at the claimed invention.

12. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/097753 in view of Elwakil (U.S. 5,833,743).

The disclosure with respect to WO 03/097753 in paragraph 6 above is incorporated here by reference.

The difference between WO 03/097753 and the present claimed invention is the requirement in the claims of pH of the ink.

Elwakil, which is drawn to ink jet ink, disclose the use of ink possessing pH of 9-11 in order to prevent the ink from corroding the printer (col.5, lines 8-19).

In light of the motivation for using ink with specific pH disclosed by Elwakil as described above, it therefore would have been obvious to one of ordinary skill in the art to control the pH of the ink of WO 03/097753 to such values in order that the ink does not corrode the printer, and thereby arrive at the claimed invention.

13. Claims 1-10 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirasa et al. (U.S. 2002/0019458) in view of Hayashi (U.S. 6,500,248).

Hirasa et al. disclose ink jet ink possessing surface tension of 30-35 dyne/cm wherein the ink comprises 2-8% pigment, 8-70% water-soluble polyurethane possessing weight average molecular weight of 5,000-20,000 and acid number of 55-150, and 5-30% solvent including 2-pyrrolidone. Given that the polyurethane possesses acid number of 50-150 and given that acid number is a measure of the acid functionality or number of free acid groups, it is clear that the polyurethane would inherently possess water-solubility greater than about 5% at 25 °C. The use of surfactant is not required. There is

also disclosed process for printing the ink from ink jet printer onto substrate. Although there is no explicit disclosure of ink cartridge, it is clear that ink jet printer would necessarily intrinsically possess such cartridge in order to store the ink (paragraphs 1, 12, 24, 34, 47, 51, and 55). Further, it is noted that given that Hirasa et al. disclose that the polyurethane is water soluble and given that the polyurethane possesses acid number and molecular weight as presently claimed, it is clear that such polyurethane would intrinsically possesses water-solubility limit as presently claimed and that the polyurethane would intrinsically be fully dissolved as presently claimed.

The difference between Hirasa et al. and the present claimed invention is the requirement in the claims of 1,2-alkyldiol.

Hayashi, which is drawn to ink jet ink, disclose the use of 10-30% 1,2-alkanediol, i.e. 1,2-alkyldiol, such as 1,2-pentanediol or 1,2-hexanediol in order to improve the color development of the ink and to prevent feathering and bleeding in print (col.3, line 49- col.4, line 8).

In light of the motivation for using 1,2-alkyldiol disclosed by Hayashi as described above, it therefore would have been obvious to one of ordinary skill in the art to use 1,2-alkyldiol in the ink of Hirasa et al. in order to produce ink with improved color development that does not exhibit feathering or bleeding, and thereby arrive at the claimed invention.

14. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirasa et al. in view of Hayashi as applied to claims 1-10 and 17-20 above, and further in view of Iu et al. (U.S. 6,102,998).

The difference between Hirasa et al. in view of Hayashi and the present claimed invention is the requirement in the claims of specific solvent.

Iu et al., which is drawn to ink jet ink, disclose the use of hydantoin solvent identical to that presently claimed in order to produce ink with enhanced image quality, waterfastness, and dry time (col.4, lines 41-65 and col.9, lines 20-24).

In light of the motivation for using hydantoin solvent disclosed by Iu et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such hydantoin solvent in the ink of Hirasa et al. in order to produce ink with enhanced image quality, waterfastness, and dry time, and thereby arrive at the claimed invention.

15. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirasa et al. in view of Hayashi as applied to claims 1-10 and 17-20 above, and further in view of Ma et al. (U.S. 5,648,405).

The difference between Hirasa et al. in view of Hayashi and the present claimed invention is the requirement in the claims of the viscosity of the ink.

Ma et al., which is drawn to ink jet ink, disclose that acceptable viscosity for ink that is utilized in ink jet printer is less than 10 cP so that the ink has excellent storage stability and does not clog the printer nozzles (col.5, lines 39-59).

In light of the motivation for using ink jet ink with specific viscosity disclosed by Ma et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use ink with such viscosity in Hirasa et al. in order that the ink has excellent storage stability and does not clog the printer nozzles, and thereby arrive at the claimed invention.

16. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirasa et al. in view of Hayashi as applied to claims 1-10 and 17-20 above, and further in view of Elwakil (U.S. 5,833,743).

The difference between Hirasa et al. in view of Hayashi and the present claimed invention is the requirement in the claims of pH of the ink.

Elwakil, which is drawn to ink jet ink, discloses the use of ink possesses pH of 9-11 in order to prevent the ink from corroding the printer (col.5, lines 8-19).

In light of the motivation for using ink with specific pH disclosed by Elwakil as described above, it therefore would have been obvious to one of ordinary skill in the art to control the pH of the ink of Hirasa et al. to such values in order that the ink does not corrode the printer, and thereby arrive at the claimed invention.

Response to Arguments

17. Applicants' arguments filed 6/22/07 have been fully considered but they are not persuasive.

Specifically, applicants argue that WO 03/097753 is not a relevant reference against the present claims given that there is no disclosure that the water-soluble polyurethane is fully dissolved as required in all the present claims. Applicants argue that WO 03/097753 in fact teaches away from water-soluble polyurethane given that the polyurethane of WO 03/09775 is crosslinked and further given that WO 03/097753 discloses gel content.

However, while in one embodiment WO 03/097753 discloses forming pigment dispersion by mixing the pigment and water-soluble resin, kneading the mixture, dispersing, adding the water-soluble polyurethane, and then crosslinking, in another embodiment, crosslinking occurs first followed by adding the water-soluble polyurethane (paragraph 69 (lines 9-11)). In the latter embodiment, while the water-soluble resin is crosslinked, the water-soluble polyurethane is not. Further, while paragraphs 112-118 of WO 03/097753 discloses the gel fraction, i.e. crosslinking rate of a resin in a dispersion, this crosslinking rate does not necessarily refer to the water-soluble polyurethane but can refer to the water-soluble resin. There is no requirement in WO 03/097753 that the polyurethane is crosslinked. While it is the preferred embodiment in WO 03/097753 that both the water-soluble resin and the water-soluble polyurethane are crosslinked, it is noted that “nonpreferred disclosures can be used. A nonpreferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims”, *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960).

Thus, the examiner's position remains that given that WO 03/097753 disclose that the polyurethane is water-soluble and further given that the polyurethane possesses acid

number as presently claimed, it is clear that the polyurethane would inherently possess water-solubility limit as presently claimed and would inherently be fully dissolved as presently claimed.

Applicants also argue that there is no motivation to combine Hirasa et al. with Hayashi et al. given that while Hayashi et al. disclose using 1,2-alkyldiol to improve color development, effectively prevent feathering and bleeding in prints, and improve storage stability of the ink, there is no disclosure in Hirasa et al. that such properties need improvement. Applicants argue that the examiner has utilized an “obvious to try” standard.

Hirasa et al. disclose ink jet ink comprising 2-8% pigment, 8-70% water-soluble polyurethane possessing weight average molecular weight of 5,000-20,000 and acid number of 55-150, and 5-30% solvent including 2-pyrrolidone, however, there is no disclosure of 1,2-alkyldiol as presently claimed. This is why Hirasa et al. is combined with Hayashi.

Hayashi, which is also drawn to ink jet ink, discloses using 1,2-alkyldiol as presently claimed in order to improve color development, effectively prevent feathering or bleeding in prints, and to improve storage stability of the ink. Further, attention is drawn to comparative data of Hayashi that discloses that ink comprising 1,2-hexanediol (example 1) is superior to identical ink not comprising 1,2-hexanediol (comparative example 1) in terms of feathering, bleeding, and nozzle clogging. Thus, it is clear that the presence or absence of 1,2-alkyldiol directly effects the properties of ink.

Further, it is noted that in addition to being in the same field of endeavor of Hiras et al., Hayashi discloses the use of ink comprising water, pigment, water-soluble emulsion comprising polyurethane, and 2-pyrrolidone as does the ink of Hiras et al. Further, it is noted that the ink of Hiras et al. is open to the inclusion of additional ingredients, i.e. "it is also possible to add where necessary other additives". Given that Hiras et al. allows the inclusion of additional ingredients in the ink, Hiras et al. is clearly open to improving properties of the ink.

Thus, given that Hayashi is drawn to same field of endeavor as Hiras et al., i.e. ink jet ink, and comprises similar ingredients to the ink of Hiras et al., given that Hiras et al. is open to the inclusion of additional ingredients, given that Hayashi provides motivation for using 1,2-alkyldiol and shows that ink comprising 1,2-alkyldiol is superior to ink not comprising 1,2-alkyldiol, it is the examiner's position that there is motivation to combine Hiras et al. with Hayashi and that such combination has a reasonable expectation of success.

Thus, it is the examiner's position that an "obvious to try" standard has not been used in combining Hiras et al. with Hayashi et al. Rather, the references are combined given that Hiras et al. is open to the inclusion of additional additives and given that there is motivation for one of ordinary skill in the art, in the prior art itself, to combine Hiras et al. with Hayashi, namely, the use of 1,2-alkyldiol improves color development, effectively prevents feathering or bleeding in prints, and improves storage stability of the ink.

Applicants argue that there is no reasonable expectation of success when combining Hirasa et al. with Hayashi et al. given that the art of ink formulation is highly unpredictable.

While there may be some level of unpredictability involved when combining the references, on the one hand, it would have been within the skill level of one of ordinary skill in the art to control the amount of 1,2-alkyldiol and polyurethane added to the ink of Hirasa et al. in order that the 1,2-alkyldiol would not negatively effect the ink. On the other hand, it is noted that obviousness does not require absolute predictability, *In re Miegel and Verbanc*, 159 USPQ 716 (CCPA 1968). Given that Hayashi discloses that the presence or absence of 1,2-alkyldiol in ink jet ink directly effects the overall composition of the ink in terms of feathering, bleeding, nozzle clogging, etc., it is the examiner's position that one of ordinary skill in the art would have a reasonable expectation of success when combining Hirasa et al. with Hayashi.

As evidence regarding such unpredictability, applicants point to inks C and E on page 15 of the present specification and note that comparison of these examples shows that the addition of 1,2-alkyldiol can have an immense impact on different properties of an ink.

However, firstly, it is noted that while ink C, which utilizes higher amount of 1,2-alkyldiol, has lower drytime but worse firing stability than ink E, both ink C and ink E comprise amounts of polyurethane and 1,2-alkyldiol that fall within the scope of the present claims. Thus, both ink C and ink E are inks within the scope of the present claims. Further, there is no requirement in the present claims regarding drytime or firing

stability. Thus, while ink C has poor firing stability as compared to ink E, ink C remains an inventive ink. Therefore, while the comparison of ink C with ink E shows that the use of different amounts of 1,2-alkyldiol can negatively effect properties of the ink, there is no evidence that the of 1,2-alkyldiol in Hirasa et al. would negatively effect the ink to the extent that they are not within the scope of the present claims. Additionally, it is within the skill level of one of ordinary skill in the art to control the amounts of ingredients ink the ink including 1,2-alkyldiol and polyurethane to produce ink with desired properties.

Applicants also argue that while Ma et al. disclose desirability of inks with viscosity less than 10 cP, this falls far short of teaching specifically claimed viscosity ranges. Applicants also note that claims 13-14 further require that the ink has specific surface tension.

However, it is noted that as set forth in MPEP 2144.05, in the case where the claimed range “overlap or lie inside ranges disclosed by the prior art”, a *prima facie* case of obviousness exists, *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Further, it is significant to note that Ma et al. disclose that jet velocity, separation length of droplets, drop size, and stream stability are greatly affected by the viscosity of the ink and that ink suitable for ink jet printing should possess viscosity less than 10 cP. Therefore, it would have been obvious to one of ordinary skill in the art to control viscosity of ink of Hirasa et al. to values, including that presently claimed, in order to

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produce ink that is effectively utilized in, and printed from, ink jet printer, and thereby arrive at the claimed invention.

Further, it is noted that Hirasa et al. teach that the ink possesses surface tension of 30-35 dyne/cm (paragraph 51).

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
8/29/07